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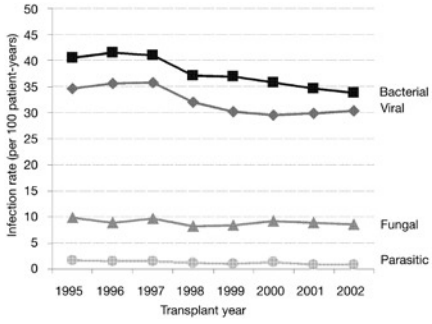
Endothelial nitric oxide synthase gene polymorphisms and renal hemodynamics

Recent progress in the construction of the human HapMap, with its identification of a large number of single-nucleotide polymorphisms (SNPs), has provided new information on the association between a given SNP and disease incidence or outcome. Commercial entities have been set up to perform these studies, which have not revealed the function of the gene of interest when a polymorphism is identified. *Kidney International* is now delighted to publish a paper by Cherney *et al.* that reveals a gene's function. Nitric oxide (NO) is synthesized by a number of synthases, one of which is present in endothelial cells and contains several polymorphisms. Since NO is generated by endothelial synthases from circulating L-arginine, the authors infused L-arginine in subjects who had one or another of the polymorphisms. They then measured the change in renal hemodynamics induced by the L-arginine infusion. The polymorphism of interest was at position 894, where a G could substitute for a T. Subjects with a GG genotype had lower blood pressure and significant changes in effective renal plasma flow, glomerular filtration rate, filtration fraction, renal vascular resistance, and renal blood flow. On the other hand, subjects with a GT/TT genotype had a blunted response. However, neither the levels of circulating cyclic guanylic acid (the direct signaling molecule whose synthesis is increased on NO activation) nor the mRNA expression of endothelial NO synthases in skin biopsies was different. These studies show that the G894T polymorphism is a functional variant in humans and is worth studying in a large cohort. **See page 327.**

Infections following kidney transplantation



Improvements in kidney and patient survival following transplantation have been achieved in recent years. However, infections in these immune-compromised patients remain a significant complication. Snyder *et al.* reveal more about this problem by examining the incidence, trends, and clinical correlates of infections following kidney transplantation in the United States Renal Data System during the years 1995–2003 in 46,471 adults. Their findings show that infections with cytomegalovirus have declined while infections with hepatitis C have increased. The risk factors in patients with infections include diabetes, cadaveric transplants, older age, and longer time on dialysis before transplantation. No improvements were found in the incidence of infections in the past decade. These findings present an opportunity to combat post-transplant infections, since it appears that nephrologists have reached their limits using current therapies. **See page 317.**

Phosphate replacement in children on continuous renal replacement therapy

In a study presented in this issue, Santiago *et al.* found that the majority of infants and children undergoing continuous renal replacement therapy developed hypophosphatemia. As treatment progressed, almost two-thirds of the patients developed reduced serum phosphate concentrations. One-third of these patients required phosphate treatments after the end of dialysis or hemofiltration. Adding phosphate to the dialysate solutions did not cause any instability of the mixtures or other complications. Needless to say, these children did not develop hypophosphatemia or hyperphosphatemia after the end of dialysis. Given that hypophosphatemia can have serious consequences, especially for neuromuscular excitability, controlling the plasma phosphate levels in pediatric patients is an important objective. **See page 312.**